# IT Service Management

# S9 Migration Process Guide



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## Abstract:

The ***S9 Migration Process Guide*** documents steps for migrating SunIT servers from Solaris Operating System (OS) versions 2.6, 2.7 and 2.8 to Solaris 9. The process provides the capability to dual boot either operating environment. The guide assumes user familiarity with Solaris Live Upgrade and Flash Archive features. For more information, please refer to:

## Related IT S9 Migration Reference Documents:

- *S9 Migration Concepts*

## Other Sun Related Reference Documents:

- *Solaris 9 Installation Guide*

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# 1. Introduction

One of SunIT's FY03 goals is to run 100% of its business application servers at Solaris 8 or higher and to upgrade all or most of the SWAN network datacenter application servers to the Solaris 9. ITSM-PAR has defined a process that allows Solaris 9 server migration with minimal server application downtime and provides the server with dual boot capability.

The IT S9 Migration Process will define standards, processes, procedures and tools for upgrading SunIT application servers to the Solaris 9 Operating Environment.

To complete the migration, the S9 Migration Process will use Solaris 9 Live Upgrade and the Flash Archive installation. Please note that following S9 Migration Process would install Solaris 9 to alternate boot environment using a precreated flash image. It does not perform a traditional upgrade of existing OS on server.

 

# 2. S9 Migration Checklist

The following checklist summarizes the key components of the Solaris 9 Migration Process. Please read the entire S9 Migration Process document before starting. The checklist should not be considered a substitute to reading the document.

## 2.1 Review Related Information

- Getting Started
- Supported System Configuration
- Find pre-created Flash Archives at: **http://S9MigrationWebURL** (not applicable where master Flash Image being used is created and managed by ITOps or specific group)

## 2.2 S9 Migration Process Checklist

| ***Task*** | | |
|---|---|---|
| | **(MANDATORY)** Review the ***S9 Migration Process Guide*** **Minimum Requirements** section | "Getting Started", p. 7 |
| | **(OPTIONAL)** Create Flash Archive from the Master System. Use appropriate pre-created Flash Archive image or create master Flash Archive image using Master System and Flash Archives in this process guide. | "Master system and Flash Archive", page 42 |
| | **(MANDATORY)** Install IT S9 Migration Tools. Go to http://S9MigrationWebURL | " Executing Migration Steps" , page 9 |
| | **(MANDATORY)** Verify successful IT S9 Migration Tools package installation. | " Executing Migration Steps" , page 10 |
| ***Migration*** | | |
| | **(MANDATORY)** Run Pre-Migration Validation [Run_S9_migration_process.sh s9_premigration] | " Migration Execution Steps" , page 11-14 |
| | **(MANDATORY)** Verify successful completion of s9_premigration module | " Migration Execution Steps" , page 15 |
| | **(MANDATORY)** Run Migrate System [Run_S9_migration_process.sh s9_migration] | " Migration Execution Steps" , page 17-19 |
| | **(MANDATORY)** Verify successful completion of s9_migration module | " Migration Execution Steps" , page 19 |
| | **(MANDATORY)** Verify mail user created in current boot environment. | " Migration Execution Steps" , page 22 |
| | **(MANDATORY)** Run Post-Migration Analysis [Run_S9_migration_process.sh s9_postmigration] | " Migration Execution Steps" , page 22 |

 

| ***Task*** | | |
|---|---|---|
| | **(MANDATORY)** Verify successful completion of s9_postmigration module | " Migration Execution Steps" , page 24 |
| | **(RECOMMENDED)** Review analysis reports and perform any post-migration OS filesystem content synchronization. | " Migration Execution Steps" , page 25 |
| | **(MANDATORY)** Perform Pre-Reboot Steps | " Migration Execution Steps" , page 26-27 |
| ***Completing Migration*** | | |
| | **(MANDATORY)** Reboot system (Requires server downtime and normal application shutdown) | " Completing Migration Steps" , page 28 |
| | **(MANDATORY)** Verify system successful startup. | NA |
| | **(OPTIONAL)** VxFS install and configuration if needed. | " Completing Migration Steps" , page 29 |
| | **(OPTIONAL)** VxVM uninstall and configuration if needed. | " Completing Migration Steps" , page 28 |
| | **(OPTIONAL)** Synchronize all necessary files and file system contents between the two boot environments (if not already done during **Post Migration** step). | " Completing Migration Steps" , page 28-29 |
| | **(OPTIONAL)** Synchronize server specific package configuration files between current and alternate boot environments (if not already done during post_migration step). | " Completing Migration Steps" , page 28-29 |
| | **(OPTIONAL)** Install additional software packages as required. | " Completing Migration Steps" , page 28-29 |
| | **(RECOMMENDED)** Review **Post Migration Considerations & Don'ts** section for important notes. | "Post Migration Considerations", page 46 |
| | **(RECOMMENDED)** Review **Appendix A** for **Known Issues And Limitations** | "Appendices" , page 48 |

 

# 3. Getting Started

Make sure you are able to login to the target system as root before starting S9 Migration steps. Also, be familiar with the **Solaris Live Upgrade** and **Flash Archive** technologies used in the S9 Migration Process. ( See ***Solaris 9 Installation Guid*e**).

Before performing the migration, review the ***S9 Migration Concepts*** document for additional details on the process' automated modules.

## 3.1 Supported System Configuration

Review **Table 1** to verify that the current version of the S9 Migration Process is supported for your target system. The table lists the S9 Migration Process support matrix for various System Configurations and Volume Manager combinations.

**Table 1: Supported System Configuration with process version:**

| *Volume Manager Version* | *System Config* | *OS Version* | *Supported* |
|---|---|---|---|
| VxVM [2.4 - 3.2] | Standalone Server | 5.6 | Yes |
| VxVM [3.0.2 - 3.5] | Standalone Server | 5.7 | Yes |
| VxVM [3.0.2 - 3.5] | Standalone Server | 5.8 | Yes |
| SDS [4.1, 4.2] | Standalone Server | 5.6 | Yes |
| SDS [4.2] | Standalone Server | 5.7 | Yes |
| SDS [4.2.1] | Standalone Server | 5.8 | Beta |
| NONE | Standalone Serve | [5.6, 5.7, 5.8] | Yes |
| VxVM | Clustered | [5.6, 5.7, 5.8] | No |
| SDS | Clustered | [5.6, 5.7, 5.8] | No |

## 3.2 Minimum Requirements

Key S9 Migration System Requirements:

- Target server ( to be migrated ) is running on either: Solaris 2.6, 2.7 or 2.8 Operating Environments.
- A standard Solaris 9 OS “image” can be installed on the server.
- Server has minimum 2 x 4GB or higher OS disks.
- Current OS disks are mirrored (default behavior of the process is to break the mirror and use 2nd disk for S9) **OR** Minimum 2 OS disks (one for current Solaris release and one for new Solaris 9).
- No more than 200MB of OS disk space taken by non-OS content.

 

S9 Migration Package Requirements:

- SunOS 5.6 requires the following OS packages: **SUNWadmap**, **SUNWadmfw**, **SUNWadmc**, **SUNWmfrun**,**SUNWloc, SUNWlibC**
- SunOS 5.7 requires the following OS packages: **SUNWadmap**, **SUNWadmc**,**SUNWlibC**
- SunOS 5.8 requires the following OS packages: **SUNWadmap**, **SUNWadmc**,**SUNWlibC, SUNWbzip**

S9 Migration Patch Requirements:

All required Live Upgrage patches are installed as part of the S9 Migration Process. However any patch dependencies that may exist for these patches are not installed. Please be prepared to install any required patches as needed.

- SunOS 5.6 requires the following Live Upgrage patches : **111664-01, 111938-01**
- SunOS 5.7 requires the following Live Upgrage patches : 1**11666-01, 111939-01, 108029-03**
- SunOS 5.8 requires the following Live Upgrage patches :**111098-01, 109318-31, 108808-42, 111879-01**

These patches should be stored in the standardized directory on your AI3 server to remove the dependency of using a non-PSC, non-IT maintained server.

- /net/AI3-server/*TOPDIR*/install/ai3/archive/patches/standard/sunpsc/`uname -r`

  where *TOPDIR*=/export, /global/export, /solaris/netinstall as previously defined depending on the datacenter.

If the patch(es) cannot be found locally the process will attempt to obtain them from a default central server.

---

**NOTE: The **SUNWbzip** package for ***Solaris 8*** is the only OS package installed as part of the S9 Migration process. Please verify that all other required OS packages are installed before starting the process.

---

## 3.3 Pre-created Flash Archives

ITSM-PAR has created several Flash Archives to facilitate the S9 Migration Process. Each pre-created Flash Archive defines the minimal Software Configuration Level for a standard Solaris 9 installation. Information on the contents of these Flash Archives can

 

be found at the support web-site at **http://S9MigrationWebURL** .

---

**NOTE: You can always remove and /or add software after completing the the migration process.

---

 

# 4. Migration Execution Steps

After verifying the pre-created Flash Archive or creating your master Flash Archive, you may begin the migration. If creating a master Flash Archive, review the **S9 Migration Tools** section in the ***S9 Migration Concepts*** document to see how to override the default flash archive location.

## 4.1 IT S9 Migration Tools Installation

The S9 Migration Process uses the IT S9 Migration Tools set to execute the process.

**NOTE: If using c-shell, run rehash after installing the ITSMs9mig.pkg

1. Download the package from: **http://S9MigrationWebURL** and place ITSMs9mig.pkg download into the /tmp directory.
2. As root user, run the "**package add**" command and install the software from the /tmp directory

```
foo# pkgadd -d /tmp/ITSMs9mig.pkg
```

3. Verify the package installed successful using the pkginfo command.

```
foo# pkginfo -l ITSMs9mig
   PKGINST:  ITSMs9mig
      NAME:  Sun IT S9 Migration Tools
  CATEGORY:  tools
      ARCH:  sparc
   VERSION:  1.3.2
   BASEDIR:  /opt
    VENDOR: Sun Microsystems Inc.
    PSTAMP:  20030219
  INSTDATE:  Apr 02 2003 09:25
     EMAIL:  it-s9-support@xxx.xxx
    STATUS:   completely installed
     FILES:       36 installed pathnames
                   5 directories
                  26 executables
                1443 blocks used (approx)
```

 

## 4.2 Pre-migration Validation

After installing the IT S9 Migration Tools package, begin the **Pre-Migration Validation** process which performs all target system validations and verifies that all minimum system requirements have been met.

To assist with the **Pre-Migration Validation** process, ITSM-PAR has supplied an automated tool that will validate the target system configuration, perform disk management/maintenance, and install the Live Upgrade Version 2.0 software.

---

**NOTE: The **Pre-Migration** step execution will add any required Live Upgrade v2.0 packages and patches to your current OS environment. For a system change list, please review the **Live Upgrade Topics** section. No reboot is required.

---

All **Pre-Migration Validation** module executables and environment files reside in the default install directory (as defined by the package installation map). Changing the locations will cause module failure. Please see the ***S9 Migration Concepts*** document for further details.

### [ *START* ] Pre-Migration Validation *(approx. run time : 10 mins )*

1. Verify that the target system has no [ /a ] mount point. The **Live Upgrade** software uses the [ /a ] filesystem as a default mount point. Please unmount [ /a ] file system if present.
2. Run s9_premigration step

```
foo# /opt/ITSMs9mig/bin/Run_S9_migration_process.sh s9_premigration
```

   The script will log the following information in the terminal:

```
      [INFO] – important notification of events the scripts have found
[WARNING] – information on script progress
   [ERROR] – errors that have occurred during executions ( may or may not be fatal )
```

3. During the execution of the script, several possible WARNING messages may be displayed. Please review the **WARNINGS Messages : Pre-Migration Validation** section to see additional details on some of the more common error messages displayed during the **Pre-Migration Validation.**

 

4. Initially, the script will validate the default environment settings and minimum system requirements. The installer will be notified of any missing requirements or settings.

5. If the script finds key default environment settings missing, the installer will be issued a WARNING and prompted to input one or all of the following values:
   - Solaris 9 software location
   - Solaris patch file location
   - Flash Archive Image location

**Settings Prompt Example:**

```
[20030113_10:42:36] WARNING: Software/flash locations are not defined for domain [EBAY]
[20030113_10:42:36] User input required.
Enter Solaris 9 software location full pathname:(example /net/foo/export/install/media):

Enter patch location full pathname: (example /net/foo/export/patches):

Enter Flash Image location full pathname:(example /net/foo/export/install/flash_archive/)
```

6. After validating all the proper settings and system requirements, the script will install any required packages and patches identified by the validation process. If the validation process finds Live Upgrade packages and/or patches required by the migration process, the script will proceed with the installation without prompting. If an error occurs during the installation, the script will exit to allow the installer to address the errors appearing in the terminal window.
7. Next, the installer will be prompted to enter the target disk for the Solaris 9 boot environment installation. If the system is using VxVM or SDS for mirroring, the script display the list of disk associated with the root filesystem mirror and prompt the installer to select a disk to remove from the mirror. ( This will then become your target install device) . By default the second disk is highlighted .

   Prompt Example:

```
Please enter disk to remove from O/S mirroring?
        (<q> to not break mirror and select disk, <default=cXtXdX>)?
```

8. After the installer confirms the target device selection, the script will validate the

 

target device and begin breaking the mirror ( This occurs only if the target system is using VxVM or SDS for root disk mirroring). The script will automatically break the root disk group mirror and record the device the installer selected as the target disk. If the root file system is not mirrored, the script will simply record the disk the installer selected as the target device.

---

**NOTE: If your root file system is mirrored using VxVM or SDS, the Pre-Migration Process will break the mirror as an automated action after the target disk in the mirrored filesystem is confirmed.

---

9. During the execution of the script, several possible WARNING messages may be displayed. Please review the **WARNINGS Messages :Migrate System** section to see additional details on some of the more common error messages displayed during the **Migrate System .**

10. Next the pre-migration module will prompt the installer with the option of automatically partitioning the target disk for the s9_migration module to use or choosing to decline auto-partitioning function and allow the installer to manually partition the target disk before proceeding to the next step. Review the two options below to consider which option is suited to your requirements. If you are unsure, take the default option to auto-partition the target disk.

### Auto Disk Partitioning Option:

If you accept the auto-partitioning option, the disk will be partitioned according to the default guideline settings.

```
                    Recommended  Minimum     Recommended  Minimum
Slice  Tag          Size (4GB)   Size (4GB)  Size (9GB)   Size(9GB)  Mointpoint
-----  ----------   ---------    ----------  -----------  ---------  ---------------
0      root            1600MB        1400MB       2000MB     1400MB    /
1      swap            1274MB        1200MB       2000MB     1200MB    swap
5      var              800MB         800MB       1000MB      800MB   /var
6      home             400MB         400MB        800MB      400MB   /home


Do you want to continue with automated partition using above sizes <default=no>?
```

---

**NOTE: For all disk sizes 9GB and above, use the 9GB guidelines. If you choose the automate format option for a disk larger than 9GB, the recommended 9GB sizes will be applied.

---

 

**Manual-Disk Partitioning Option:**

If partitioning manually, the module will simply complete. Use the format command for the manual partitioning option. Please follow the same guidelines (see example above) for partitioning the target disk. A more experienced installer may be able to deviate from the recommendations to suit customized target system needs.
See **Appendix B** for sample output from 9GB disk format dialog.

11. By selecting either the Automated or Manual option, the s9_premigration module will complete with either a FINISH or ERROR message. If the module returns an ERROR message, review the s9_premigration log files and resolve the error. Once resolved, review the **Resetting the Execution Environment** section and re-execute the module.

12. Verify successful premigration module completion by checking:

- Check 1 : Terminal output will show the module FINISH execution.

```
--------------------------------------------------------------------------------
[20030113_10:42:36]   FINISH: ${module_name} [TIMEZONE=PST]
================================================
```

- Check 2: Review log for errors (/var/sadm/system/logs/s9_premigration.log)
- Check 3 : Verify that the root mirror is broken (if applicable)
- Check 4: Verify the status of the p_premig_flag setting in the /opt/ITSMs9mig/etc/s9_<hostname>_env file. (Should report Y if module was successful)

---

**NOTE: Each step builds on its predecessor, any failure or ignored steps will terminate the migration process

---

**[ *END* ] Pre-Migration Validation**

## 4.2.1 WARNING Messages : Pre-Migration Validation

 

There are several WARNING messages that can occur during the **Pre-Migration Validation** step. Below are a key set that you should pay special attention.

- As part of the disk confirmation process , the script will verify some system configuration settings . The script will check if a **devalias** value exist for first entry in **boot-device** parameter on the target system . The installer will receive a WARNING message if no **devalias** value exist and will be instructed to update this system configuration setting before starting the next step.

  **WARNING Message:**

```
[20030113_10:42:36]  WARNING: WARNING WARNING
--------------------------------------------------------------------------------
    SELECTED c0t5d0 IS PRIMARY BOOT DISK
     CORRECT eeprom SETTINGS BEFORE CONTINUING TO s9_migration STEP
```

- As part of the disk confirmation process , the script will verify some system configuration settings . In the case the target system is using VxVM or SDS for root disk mirroring, the script will verify that the disk selected is not the **Primary Disk.** By default the Secondary Disk is highlighted as the default target device to use, but in the case the installer selects the **Primary Disk** in the root filesystem mirror as the target for installation, a WARNING message will be displayed. It will remind the installer to change the system configuration settings before executing the next step in the process.

  WARNING Message:

```
[20030113_10:42:36]  WARNING: WARNING WARNING
--------------------------------------------------------------------------------
    NO devalias FOR boot-device=disk
    eeprom MAY NOT BE ABLE TO TRANSLATE boot-device TO A /dev/dsk
    FIX eeprom BEFORE CONTINUING TO s9_migration STEP
```

 

## 4.3 Migrate System

The **Migrate System** step includes installing the S9 Flash Archive image on the alternate disk and enabling dual boot capability. The step uses the Sun **Live Upgrade Software - Version 2.0**. Please be familiar with Live Upgrade software concepts and usage(See ***Solaris 9 Installation Guide***).

To help, ITSM-PAR has an automated tool set that will perform the migration and control all Live Upgrade Software executions.

All **Migrate System** module executables and environment files reside in default install directory as defined by the package installation map. Changing the locations will cause module failure (See the ***S9 Migration Concepts*** document).

Please review the **Additional Recommended Actions** section (not included in the automated S9 Migration Process) at the conclusion of the **Migrate System** module. Take any actions applicable to your target system.

### [ *START* ] Migrate System *(*approx. run time: 30 mins)

1. Run the s9_migration step:

```
foo# /opt/ITSMs9mig/bin/Run_S9_migration_process.sh s9_migration
```

The script will log the following information in the terminal:

```
[INFO] – important notification of events the scripts have found
[WARNING] – information on script progress
[ERROR] – errors that have occurred during executions ( may or may not be fatal )
```

2. During the execution of the script, several possible WARNING messages may be displayed. Please review the **WARNINGS Messages :Migrate System** section to see additional details on some of the more common error messages displayed during the **Migrate System .**

3. The installer will be prompted to enter the Solaris 9 boot environment installation target disk. The script will provide the default value which the disk recorded from the Pre-Validation step. Here is your last opportunity to select different physical device if necessary.

 

**Example Disk Prompt:**

```
Please enter disk to use by ABE in <c0t0d0> format
    Hit enter to accept default
     <default c0t11d0>
```

4. If entering an alternate physical device, the s9_migration module will validate the newly-entered disk partition sizes against the recommended **S9 Migration Process** partition sizes. If the validation fails, the installer will be prompted to use the **Auto-Disk Partitioning Option** (See in **Pre-Migration Validation** step )
5. If the installer declines to use the Auto-Disk Partitioning option, the s9_migration module will exit and ask the installer to manually partition the physical device and re-start the **Migrate System** step. (See **Manual -Disk Partitioning Option** in Pre-Migration Validation step).
6. Once verification and confirmation of the physical device is complete, the s9_migration module will display the Flash Archives list that can be used for the **Migrate System** module. Please select the archive you need and contact the local system administrator to use the Flash Archive(s) stage in your current working domain.

**Example Flash Prompt:**

```
List of available archives for sun4u

no  hw     os   os-version          created   file-name
1   sun4u 5.9  Generic_112233-04  20030330 s9_1202_sparc_sun4u_20030330.flar
2   sun4u 5.9  Generic_112233-03  20030129 s9_0902_sparc_sun4u_20030129.flar
3   sun4u 5.9  Generic_112233-02  20021212 s9_0902_sparc_sun4u_20021212.flar
4   sun4u 5.9  Generic_112233-02  20021209 s9_0902_sparc_sun4u_20021205.flar

Enter number :
```

7. The installer will be asked to confirm the Flash Archive selection before proceeding. When prompted, type "**yes**" to confirm selection or type "**no"** to choose a different selection.

8. The module will complete with either a FINISH or ERROR message. If the module

 

returns with the FINISH message and verification checks are successful, review the **Additional Recommended Actions:Migrate System** section for this step before proceeding to the next step. If the module returns an ERROR message, review the s9_migration log files and resolve the error. Once resolved, review the **Resetting the Execution Environment** section and re-execute the module

9. Verify the successful s9_migration script completion through the following checks:

- Check 1: Terminal output will show the module FINISH execution.

```
--------------------------------------------------------------------------
[20030113_10:42:36]  FINISH: ${module_name} [TIMEZONE=PST]
==========================================
```

- Check 2 : Review log for any errors (/var/sadm/system/logs/s9_migration.log)
- Check 3 : Verify the status of the p_mig_flag setting in the /opt/ITSMs9mig/etc/s9_<hostname>_env file. ( Should report Y if module was successful )

**[ *END* ] Migrate System**

## 4.3.1 WARNING Messages : Migrate System

There are several WARNING messages that can occur during the **Migrate System** step. Below are a key set that you should pay special attention.

- For systems with a volume manager installed (Veritas or SDS) with an encapsulated root disk, the user is prompted for additional physical device confirmation of the underlying logical device.

  WARNING Message:

```
WARNING: The device </dev/vx/dsk/rootvol> for the root file system mount point </> is not a physical device.

WARNING: The system boot prom identifies the physical device </dev/dsk/c0t5d0s0> as the system boot device. Is the physical device </dev/dsk/c0t5d0s0> the boot device for the logical device </dev/vx/dsk/rootvol>? (yes or no)
```

- As the script completes, several WARNING messages may appear. Live Upgrade

 

Software V2.0 limitations prevent these error messages from being suppressed and it is currently raised as a software package bug. Ignore the following errors and/or warning messages if they appear in the terminal window.

**Example error and warning messages:**

```
ludo: WARNING: Merged filesystem "/<directory_name>" and Merge point "/"
have different options "suid,rw" and "-".
```

```
The Live Flash Install of the boot environment <S9BE> is complete.
ERROR: BE is not mounted.
```

- If you receive the following WARNING message in the terminal window, review the **Additional Recommended Actions :Migrate System** section and add the new mail user entry using the directions provided.

  WARNING Message:

```
WARNING "PLEASE FOLLOW PROCESS GUIDE TO CREATE USER
smmsp"
```

- If you receive the following WARNING message it means that your default bit mode boot behavior was not disabled. By default your system will not boot in 64-bit mode. Please manually disable the 64-bit mode by configuring the target system boot-file parameter.

  WARNING Message:

```
[20030113_10:42:36] WARNING "eeprom COMMAND NOT FOUND"
[20030113_10:42:36]  WARNING "SYSTEM MAY BOOT 64-bit KERNEL"
```

## 4.3.2 Additional Recommended Actions: Migrate System

**Verify New Mail User**

The Solaris 9 OS introduces a new mail user required for running sendmail. The new user entry (part of the S9 Migration Process) and will be included in the alternate boot environment. Please verify that the new mail user entry action has been added. If not, follow the instructions below to add the user.

1. Add the new mail user entry in the /etc/group file if not present.

 

```
/etc/group:
    smmsp::25:smmsp
```

2. Next add the new mail user entry in the /etc/passwd file and the /etc/shadow file if not present.

```
/etc/passwd:
    smmsp:x:25:25:SendMail Message Submission Program:/:
/etc/shadow:
    smmsp:NP:6445::::::
```

## 4.4 Post-migration Analysis

After completed the **Migrate System** step, begin the **Post-Migration Analysis** step which includes verifying system readiness by comparing critical files, directories, and links between the two boot environments as well as performing some critical OS files and package synchronization. Please refer to **S9 Migration Tools** section in the **S9 Migration Concepts** document for details on Post - Migration Analysis components.

To assist with the analysis, ITSM-PAR has supplied an automated tool set that will perform the post migration analysis, create several post migration reports, perform generic file synchronizations, and invoke custom installation scripts.

---

**NOTE: Review the ***S9 Migration Concepts*** document for specific details on the generic files synchronization done by the Post-Migration module.

---

All Post Migration Analysis module executables and environment files reside the in default install directory as defined by the package installation map. Changing the locations will cause module failure. Please see the ***S9 Migration Concepts*** document for further details. The Post-Migration Analysis step comprises three sections**:**

- Custom Script Invocation ( ***Optional*** )
- Automated OS Environment Analysis
- OS Analysis and System Synchronization

 

# [ *START* ] Post-Migration Analysis (approx. run time : 5 min. )

### Custom Script Invocation:

Starting in release 1.3.1, capability has been added to call custom scripts stored in the ai3 server software location. If you have some custom scripts that you would like included as part of the S9 Migration Process, then please review the section **Custom Script Invoking** in this document for more details on how you can setup your custom scripts to be included before procedding to the next section.

### Automated OS Environment Analysis

1. Run s9_postmigration

```
foo# /opt/ITSMs9mig/bin/Run_S9_migration_process.sh s9_postmigration
```

   The script will log the following information in the terminal:

```
[INFO] – important notification of events the scripts have found
[WARNING] – information on script progress
[ERROR] – errors that have occurred during executions ( may or may not be fatal )
```

2. The module will complete with either a FINISH or ERROR message. If the module returns an ERROR message, please review the s9_postmigration log files and resolve the error. Once resolved, review the **Resetting the Execution Environment** section and re-execute the module.
3. Verify successful s9_postmigration script completion through the following checks:

   - Check 1: Terminal output will show the module FINISH execution.

```
--------------------------------------------------------------------------
[20030113_10:42:36]  FINISH: ${module_name} [TIMEZONE=PST]
==========================================
```

   - Check 2: Review log for any errors ( /var/sadm/system/logs/s9_postmigration.log)
   - Check 3: Verify the status of the p_postmig_flag setting in the /opt/ITSMs9mig/etc/s9_<hostname>_env file. ( Should report Y if module was successful )

 

## OS Analysis and System Synchronization:

1. Review all the generated **Post-Analysis** reports to determine the amount of file synchronization your target system needs  First, mount the alternate boot environment.

```
foo# lumount S9BE
```

2. Please review the following reports:

```
/var/sadm/system/logs/s9_os_validation_pkg.report ( See Appendex D for sample report )
/var/sadm/system/logs/s9_os_validation_file.report  ( See Appendex C for sample report )
```

3. Synchronize necessary files and file system content based on the findings in the analysis reports listed above and the requirements of the target system. Copy any applicable file and content differences from the original boot environment ( SxBE ) to the alternate boot environment ( S9BE). This may also include the content in the following OS directories : ( /, /var, /usr, etc).

4. After completing synchronization, unmount the alternate boot environment.

```
foo# luumount S9BE
```

5. If your target system is Sunfire(specifically 880, 15000) or and Starfire(E10000) you may need to add some additional packages to the Solaris 9 boot environment for optional system operation. Please note the following;
   - Review the s9_os_validation_pkg.report carefully for missing packages that are specific to your platform.
   - Review the platform specific documentation for further details on required packages.

## [ *END* ] Post-Migration Analysis

 

## 4.5 Pre-reboot

Once the Post Migration Analysis step is completed, and you are confident that your system has been successfully synchronized, start the **Pre-Reboot** steps.

At the conclusion of the **Pre-Reboot** steps , you will have cleared all S9 Migration target system re-boot requirements.

### [ *START* ] Pre-Reboot

1. Activate the alternate boot environment so you can reboot to Solaris 9. Once you have activated the ABE, on next system reboot, only the activated BE will be used.

```
foo# luactivate <boot_environment_name>  ( default ABE name is S9BE )
```

2. After executing the luactivate command on the ABE, use the Live Upgrade ( lustatus ) command with no arguments to verify the boot environment you want to activate. The resulting output should look like:

```
foo# lustatus
BE_name    Complete    Active    ActiveOnReboot   CopyStatus
------------------------------------------------------------------
S6BE       yes         yes       no               -
S9BE       yes         no        yes              -
```

3. At an appropriately planned server outage time (may involve providing users advanced server downtime notice), perform application/services shutdown on the server. While rc scripts can control shutdown tasks on some servers, consider the following:
    - **Notify application or server downtime to appropriate users.** Advance notice of planned downtime may be required.
    - Shutdown all applications or services appropriate for this server including:
        - any related GUI / forms / application server processes
        - web servers
        - information highway clients
    - Shutdown all databases and listeners (if any)

**[ *END* ] Pre-Reboot**

 

# 5. Completing Migration Steps

The next sequence of steps are not controlled by the Sun IT S9 Migration Tools and may have several ways of being done. The following guidelines provide migration step execution recommendations.

## 5.1 Reboot Instructions

1. Prepare to reboot the target system using one of the suggested methods. Conduct any additional reboot activities outlined for your target system (e.g.: verifying successful system and application startup). No automated tools are provided.
2. Reboot the server. Perform normal shutdown using **init 6** or **/usr/sbin/shutdown** command. Otherwise, required Live Upgrade actions will not complete (critical to successfully reboot the Alternate Boot Environment Solaris 9). Read the command output for boot-time failure instructions.

## 5.2 Post-reboot Task and Analysis

After rebooting the system and having a successful system startup, begin the **Post Reboot Task and Analysis***.* No automated tools are provided.

---

**NOTE: Your system now has dual boot capability. Modifying either installation of the Solaris Boot Environment can cause several issues including file system de-Synchronization which may corrupt the data and configuration from both Solaris installs. Please review the section **Post Migration Considerations And DON'Ts** for more details.

---

Please review the **Additional Recommended Actions :Post Reboot Task and Analysis** section (not included in the automated S9 Migration Process) and take any actions applicable to your target system.

### [ *START* ] Post Reboot Task and Analysis

1. Run the " **Explorer Data Collector "** on new Solaris 9 system ( this task must be completed after one to two hour of reboot of the system to Solaris 9).
2. Add/Remove packages accordingly.
   For additional reference information on missing/required packages and target system

 

configuration needs, review the **Post Migration Analysis** reports (in the main log directory).

3. Synchronize server specific package configuration files (like SENSpriv groups) between the current and alternate boot environments.
4. Synchronize any applicable files and file system contents in all OS directories ( /, /var, /usr, etc) between the current and alternate boot environments (if not already done in the post-migration steps).

**[ *END* ] Post Reboot Task and Analysis**

## 5.2.1 Additional Recommended Actions: Post Reboot Task and Analysis

**Target Systems using VxFS**

If your target system is using VxFS, you will need to configure the Solaris 9 boot environment to access those file systems. After completing the **S9 Post Reboot** step, you are ready to begin the VxFS configuration.

---

**NOTE: The process is usable only if your target system previously had VxFS installed. Do not attempt to configure the Solaris 9 boot environment if VxFS was not previously installed. All steps outlined assume that the S9 Migration Process completed and Solaris 9 has been rebooted.

---

1. Complete the S9 Migration Process (including target system reboot to Solaris 9).
2. Install VxFS 3.5 on S9 (version will work with older versions). There is no need to install a new Veritas License if original OS had the license installed. The license will be available on S9 boot environment.

**Table 2: Required Software Packages for VxFS**

| VxFS Version 3.5 | Description |
|---|---|
| ***VRTSvxfs*** | VERITAS File System (sparc) 3.5 |
| ***VRTSfsdoc*** | VERITAS File System Documentation (sparc) 3.5 |

3. Reboot the target system to Solaris 9 again. You will not need to activate the Solaris 9 boot environment as the environment should still be set to S9BE.

 

4. Mount each vxfs file system to complete.

```
foo# mount {/mountpoint}
```

### Target Systems not running VxVM

If your target system is not running VxVM, uninstall any VxVM related packages on the S9 Boot Environment to avoid any unwanted error messages. The step assumes that the S9 Migration Process has been executed completely and Solaris 9 has been rebooted.

If present, remove the following Veritas packages form the Solaris 9 Operating Environment.

- VRTSvxvm
- VRTSob
- VRTSvlic
- VRTSvmman

 

# 6. Finalizing System on Solaris 9 OS

Having decided to finalize on the Solaris 9 Operating System , there are several actions to be taken to restore the system to a fully mirrored system. The next sequence of steps outline the requirements to finalize the target system on the Solaris 9 Operating System. Please make sure your system is running Solaris 9 before starting.

---

**NOTE: The steps in this section assume that the S9 Migration Process as been run to completion with no errors, the target system has been **rebooted to Solaris 9** , and that all necessary system synchronization is complete and the system no longer requires the ability to fail-back to the original OS.

---

## [ *STEP #1* ] Mount home partition of S9 OS disk

1. Determine the S9 environment's /home partition. This is typically Slice 6 of the disk used for the ABE (Solaris9 Env) . This maybe obtained from the / var/sadm/system/logs/s9_premigration.log, reviewing the display of auto-partition information.

**Example: The S9 /home will be c2t12d0s6**

```
                    Recommended  Minimum     Recommended  Minimum
Slice  Tag          Size (4GB)   Size (4GB)  Size (9GB)   Size(9GB)  Mointpoint
-----  -----------  ---------    ----------  -----------  ---------  ---------------
0      root           1600MB        1400MB       2000MB     1400MB    /
1      swap           1274MB        1200MB       2000MB     1200MB    swap
5      var             800MB         800MB       1000MB      800MB   /var
6      home            400MB         400MB        800MB      400MB   /home


Do you want to continue with automated partition using above sizes <default=no>?
```

2. You can verify this via format utility and displaying the current layout of the S9 OS disk which in the following example confirms "home" to be Slice 6:

**Example: The S9 /home will be c2t12d0s6**

```
                    Recommended  Minimum     Recommended  Minimum
Slice  Tag          Size (4GB)   Size (4GB)  Size (9GB)   Size(9GB)  Mointpoint
-----  -----------  ---------    ----------  -----------  ---------  ---------------
0      root           1600MB        1400MB       2000MB     1400MB    /
1      swap           1274MB        1200MB       2000MB     1200MB    swap
5      var             800MB         800MB       1000MB      800MB   /var
6      home            400MB         400MB        800MB      400MB   /home


Do you want to continue with automated partition using above sizes <default=no>?
```

 

3. Now mount the new /home as follows:

```
foo# mount <device for new home> /mnt
```

## [ *STEP #2* ] Copy existing /home to new S9 disk partition home

1. We now require to copy the contents of the existing /home, to the new home partition, mounted as /mnt. For this we may use cpio or ufsdump command as follows:

```
foo# cd /home
foo# find . -mount -local -print | cpio -pvdum /mnt  >/var/tmp/cpio.log
```

## [ *STEP #3* ] Edit and unmount the old /home & new s9 partition /home

1. Edit vfstab and make change to the S9 /home entry to point to new disk.

2. Verify contents of new S9 partition home in /mnt.

3. Now unmount the old home and the new S9 home

```
foo# cd /
foo# umount /home
foo# umount /mnt
```

## [ *STEP #4* ] Delete the Old BE

1. You can now delete the Live Upgrade boot environment that was created for the previous OS.

```
foo#  ludelete SXBE
```

## [ *STEP #5* ] Remirror the OS disk ( *if applicable* )

For this step, there may be option of either Veritas or SDS used. If your target system uses Veritas or SDS for root filesystem mirroring, you will need to use one of the

 

following options

### Veritas Volume Manager for OS Disk Option:

1. Stop all volumes in the rootdg

```
foo#  vxprint -g  rootdg
foo#  vxvol stop <all volumes displayed in rootdg>
```

2. Remove these volumes

```
foo#  vxedit -r rm <all volumes displayed in rootdg>
```

3. Encapsulate the New OS disk

```
foo#  vxdiskadm  (option 2 to encapsulate)
Enter the disk name of the NEW OS Disk, (eg c3t5d0 ) You will be prompted for a disk group: Enter rootdg . Follow local standards regarding device & default names.
```

4. You must reboot at this point

```
foo#  shutdown -i6 -y
```

5. After system reboot, re-mirror the OS disk

```
foo#  vxmirror <NEW OS Disk> <OLD OS Disk>
```

### Solaris Volume Manager for OS Disk Option:

1. Determine the metadevices which make up old OS disk  [ These will primarily be root, var, home, swap, and may use d50, d55, d60, d65 resp ]

```
foo#  metastat d50 ( example device )
```

2. Determine what submirrors were detached from the old OS disk, which now make up the new OS disk

 

**Available in /var/sadm/system/logs/s9_premigration.log under section titled:**

"INFO: Detaching and clearing metadevices"

3. Initialize the submirror-devices making up the new OS disk

**foo#** metainit -f d52( *example device* )

4. Clear the metadevices that make up the old OS

**foo#** metaclear d50 ( *example device* )

5. Initialize the metadevices using the metadevice-submirrors from new OS

**foo#** metainit d50 -m d52 ( *example device* )

6. Run metaroot on root volume

**foo#** metaroot d50 ( *example device* )

7. You must reboot at this point.

**foo#** shutdown -i6 -y

8. After system reboot, clear the metadevice-submirrors from old OS

**foo#** metaclear d51 ( *example device* )

9. re-Initialize metadevice-submirrors from old OS

**foo#** metainit d51 ( *example device* )

10. Attach metadevice-submirrors from old OS to sync into new metadevices

**foo#** metattach d50 d51( *example device* )

 

## [ *STEP #6* ] File & Package Cleanup

1. Removing the Sun IT S9 Migrations Tools package and removing the the Live Upgrade lutab file

```
foo# cd /etc
foo# rm lutab
foo# pkgrm ITSMs9mig
```

2. Edit /etc/vfstab to ensure all filesystems are being mounted via the volume, and not the single disk entries they used during dual-boot phase.

## [ *STEP #7* ] Reset system to default 64-bit behavior

1. The S9 Migration Process will automatically disable the 64-bit mode of a target system that was originally running in 32-bit mode. Upon finalizing on the Solaris 9 OS you should reconfigure the default system setting ( 64-bit mode ) for the target system.

---

**NOTE: If your target system was originally running in 64-bit mode , the default setting should already be present. However you may want to verify that the **boot-file** parameter is set to NULL.

---

- If your system was/is running in 32-bit mode, clear boot prom setting "boot-file", so that Solaris 9 will use default mechanism to boot 64-bit OS.

```
foo# eeprom boot-file=""
```

- If the target server was migrated to S9 using release **1.0** or **1.1** of the S9 Migration Process, you will need to rename 64-bit kernel file back to its original name:

```
foo# cd /platform/sun4u/kernel/sparcv9
foo# mv unix.64bit unix
```

 

# 7. Reverting System to Original Solaris OS

If you decided to want to revert and finalize your target system on it's original Solaris Operating System there are several actions to be taken to restore the system to a fully mirrored system. The following guidelines maybe used to achieve this. The next sequence of steps outline the requirements to finalize the target system on the original Solaris Operating System. Please make sure your system is running its original version of Solaris [ 2.6, 2.7, 2.8 ] before starting.

---

**NOTE: The steps in this section assume that the S9 Migration Process as been run to completion with no errors, and the system no longer requires the ability to dual boot the Solaris 9 OS.

---

## [ *STEP #1* ] Activate a boot target system with original Solaris OS

1. The target system should be booted with the original Solaris OS version. You will need to use the Live Upgrade commands to activate the original boot environment . Once you have activated the original boot environment , on next system reboot, only the activated BE will be used.

```
foo# luactivate <boot_environment_name>  ( default BE name is SXBE )
```

2. After activating the original boot environment , use the Live Upgrade ( lustatus ) command with no arguments to verify the boot environment you want to activate. The resulting output should look like:

```
foo# lustatus
BE_name    Complete    Active    ActiveOnReboot   CopyStatus
----------------------------------------------------------------------
SXBE       yes         no        yes              -
S9BE       yes         yes       no               -
```

 

## [ *STEP #2* ] Clean the Environment

**1.** The target system should be cleaned of all the S9 Migration Process logs and configuration files. To do this you can use the clean_to_restart.sh utility.

```
foo# cd /opt/ITSMs9mig/bin
foo# ./clean_to_restart.sh
```

## [ *STEP #3* ] Re-mirror the OS disk ( *if applicable* )

For this step, there maybe option of either Veritas or SDS used. If your target system uses Veritas or SDS for root filesystem mirroring, you will need to re-mirror the appropriate root filesystem devices.

## [ *STEP #4* ] File & Package Cleanup

3. Removing the Sun IT S9 Migrations Tools package and removing the the Live Upgrade lutab file

```
foo# cd /etc
foo# rm lutab
foo# pkgrm ITSMs9mig
```

 

# 8. Resetting the Execution Environment

## 8.1 Resetting the s9_premigration Module:

The s9_premigration will automatically reset itself so the module can easily be run multiple times.

---

**NOTE: If starting the S9 Migration Process over from the beginning, reset the environment by executing the ***cleanup_to_restart.sh*** utility.

---

## 8.2 Resetting the s9_migration Module:

Choose any step from which to reset the s9_migration module. For every s9_migration module step, a lock file is created that identifies when a specific step is completed. To reset an s9_migration module from a specific step, remove the step's corresponding lock file from the /tmp directory. For notification that the s9_migration module can be re-executed, edit the **set_<hostname>_env** file and remove the **p_mig_flag** variable.

---

**NOTE: To re-start execution from a desired s9_migration module step, delete all successive lock files after the step from which you are starting.

---

To re-execute the s9_migration process from the point (DISK_SLICES), remove the following:

- Delete the file /tmp/RUNS9*
- Delete the **p_mig_flag** variable from the set_<hostname>_env file

To re-execute the s9_migration process from the point (LUCREATE), remove the following:

- Delete the file /tmp/RUNS9_LUCREATE
- Delete the file /tmp/RUNS9_LUUPGRADE
- Delete the file /tmp/RUNS9_COPY_FILES
- Delete the **p_mig_flag** variable from the set_<hostname>_env file

To re-execute the s9_migration process from the point (LUUPGRADE) remove the following:

- Delete the file /tmp/RUNS9_LUUPGRADE
- Delete the file /tmp/RUNS9_COPY_FILES

 

- Delete the **p_mig_flag** variable from the set_<hostname>_env file

To re-execute the s9_migration process from the point (COPY_FILES), remove the following:

- Delete the file /tmp/RUNS9_COPY_FILES
- Delete the **p_mig_flag** variable from the set_<hostname>_env file

## 8.3 Resetting the s9_postmigration Module:

To reset the s9_post migration module, delete the **p_postmig_flag** variable from the **set_<hostname>_env** file to allow the module to be re-executed.

 

# 9. Custom Script Invoking

Starting from release 1.3.1, after os validation reports are generated, per suggestion from PSC SAs, this module will look for a custom script data file in ai3 server's software location, for example in Central Domain the location is defined in the following dir: /net/brmpsca.central/export/install/flash_archive/solaris9 . The file name is "s9_postmigration_custom.dat". This file contains the custom script lines that will need to be executed in order. Please put your custom scripts/commands inside this file. The scripts/commands in this data file need to have full qualified path to avoid errors. The log will be captured inside s9_postmigration.log, but ITSM will not be able to assist further for any scripting errors when running the custom scripts or commands.

 

# 10. Useful Utilities

The Sun IT S9 Migration Tools include several additional utilities and logs:

### cleanup_to_restart.sh (located in - /opt/ITSMs9mig/bin)

Use the utility korn shell script to reset the target system if you want to run the entire S9 Migration Process from the beginning (completely refreshes all logs and files created during previous executions). The utility will remove all necessary log files, module locks, and Live Upgrade boot environments. Be careful, the utility will return the target system to a refresh state.

---

**NOTE: The **cleanup_to_restart.sh** utility does not re-mirror any disks broken during the **S9 Pre-Migration Validation** step.

---

### s9_parfacts.out (located in - /var/sadm/system/logs)

The utility log contains system information and output useful for additional target system validations.

 

# 11. Master Flash Creation Process

All S9 Migration Process pre-created Flash Archives are created based on a master system. Several standard Flash Archive images represent certain Solaris installation levels.

## 11.1 Master Server Build Guidelines

A Master system is the starting point for creating Flash Archives. First, install a Master System with a configuration identical to any target clone systems. The master system and the clone systems must have the same kernel architecture (e.g.: you can only use a master system- created archive with a sun4u architecture to install clones with a sun4u architecture).

Use any of the Solaris installation methods to install an archive on the master system. The installation can be a subset or a complete Solaris Operating Environment (OE) installation. Once installation is completed, you can add or remove software, or modify any configuration files. While installing the master system, remember:

- Solaris packages and patches required on the master system and the clone systems.
- The software that you want to install on the clone systems.
- Peripheral devices connected to the master system and the clone systems.
- The master system and clone system architecture
- Remove software from the master system not required on the clone systems.
- Prior to invoking "**flarcreate**" command, unmount all file systems except OS file systems that need to be part of Flash Archive being created.

## 11.2 Standard Location and Naming Conventions

- Flash archives should reside in the standardized directory on your nfs server on the local network, to minimize network traffic.
  - /net/nfs-server/*TOPDIR*/install/flash_archive/solaris9

    where *TOPDIR*=/export, /global/export, /solaris/netinstall as previously defined depending on the datacenter.
- Flash archives should be created with the following naming conventions

 

**S**<MAJOR_RELEASE>_<UPDATE_RELEASE>_<PLATFORM>_<ARCHITECTURE>_<YYYYMMDD>{_OPTIONAL}**.flar**

where

| | |
|---|---|
| <*MAJOR_RELEASE*> | OS Release number. Example: 9 or10 |
| <*UPDATE_RELEASE*> | OS update release identifier. Example: FCS or 0902 or 1202 |
| < *PLATFORM* > | Platform processor type. Example: sparc |
| < *ARCHITECTURE*> | Machine hardware name (class). Example: sun4u |
| <*YYYYMMDD*> | Creation date for Flash Archive image. Example: 20021205 |
| *{OPTIONAL}* | Optional Info – Example: SB for secure build |

## 11.3 Example

- The following command was used to create the flash archive for Solaris 9 12/02 release on a sun4u sparc processor on 29-JAN-2003

```
foo# flarcreate -n "Solaris9(U2) Sun4u ITSM Release 1.3.2 30-MAR-2003" -S -c -x /mnt/flash /
mnt/flash/s9_1202_sparc_sun4u_20030330.flar
```

The following command displays information about the created flash

```
foo# flar -i /mnt/flash/s9_1202_sparc_sun4u_20030330.flar
    archive_id=9c5ea1b1adffb8c2becf173ca0a50657
    files_archived_method=cpio
    creation_date=20030330192658
    creation_master=tweeter
    content_name=Solaris9(U2) Sun4u ITSM Release 1.3.2 30-MAR-2003
    creation_node=tweeter
    creation_hardware_class=sun4u
    creation_platform=SUNW,Ultra-2
    creation_processor=sparc
    creation_release=5.9
    creation_os_name=SunOS
    creation_os_version=Generic_112233-04
    files_compressed_method=compress
    content_architectures=sun4u
```

 

# 12. Live Upgrade

The current version of the S9 Migration Process uses Live Upgrade (Version: 11.9,REV=2002.06.07.14.32 ) to drive the actual migration process. Live Upgrade software enables a duplicate boot environment to be upgraded while the active boot environment is still running, eliminating production environment downtime. The current version is installed as part of the S9 Migration Process if not present on the target environment.

The Pre-Migration Validation will also install any required patches for the Live Upgrade software based on the original OS level. To support the Live Upgrade software, The following patches will be installed as part of the S9 Migration Process:

**Table 3: Required Software Patches**

| Solaris Version | Required Live Upgrade Patches |
|---|---|
| ***Solaris 2.6*** | 111664-01 111938-01 |
| ***Solaris 7*** | 111666-01 111939-01 108029-03 |
| **Solaris 8** | 111098-01 109318-28 108808-42 111879-01 |

The installer needs to understand the packages and patches, and the resulting system changes. The installation will not prompt the user. Any conflicting files will be overwritten. For more information, review the ***S9 Migration Concepts*** document.

 

# 13. S9 System Configuration

The ITSM group has created a series of standardized Flash Archives to facilitate the S9 Migration Process. Each pre-created archive represents a Software Configuration Level that defines the minimum recommended packages and patches for a new Solaris 9 OS installation. The images are based on system architecture type, data center location, and target system requirements.

To review the contents of an available pre-created flash archive, please go to the following url: **http://S9MigrationWebURL**

To determine if the pre-configured flash images fit the needs of the target system on which the images are being installed, review the **Flash Contents** section.

 

# 14. Post-migration Considerations & Don'ts

## 14.1 General Considerations

1. After rebooting, any changes made to the new boot environment will not be synchronized with the old boot environment on re-boot.
2. To activate the different boot environments, you need to know Live Upgrade commands.
3. Do not leave either of the inactive boot environments mounted when not in use.
4. After rebooting, do not anything that would prohibit dual-boot capability until the migration has been certified complete.
5. After end of Fallback Capability Duration (FCD) during which dual boot capability should exist, the system administrator must remove the previous boot environment (old OS) and re-mirror new OS (Solaris 9) root disk which will permanently remove the previous OS.

## 14.2 DON'Ts (Or, do with care)

As long as “Dual OS” capability is required (retaining ability to run applications on either OS), Consider resulting impacts before making Solaris 9 Boot Environment changes. Otherwise, the changes might make the system or application unusable on the previous or old boot environment.

1. Do not relink or recompile executables while running New OS. When relinking or application executable compiling is done while running New OS, make a note of the executables so that relinking can be redone when system is booted with old OS.
2. DO NOT upgrade Veritas Volume Manager Disk Group version on volumes. (would leave Veritas volumes unusable on old OS).
3. Do not modify OS file systems (/, /var) private contents as the contents will not automatically update on other OS. If necessary to change the OS file systems (/, /var), private contents, make such changes on both OS environments appropriately.
4. Under OS file system (/, /var), complete all mount point changes on both OS environments.

 

# 15. Migration for Sun Cluster

Here are the detail steps for upgrading Production Sun Cluster servers from Solaris2.6/7/8 to Solaris 9 and SunCluster 2.2 to SunCluster 3.0.

You may skip certain steps if they are not relevant to your environment.

## 15.1 Pre Downtime Tasks

- Run Sun IT Solaris 9 Migration Process on all nodes of the cluster (nodes A and B).
- Before running S9_migration step, please check / opt/ITSMs9mig/etc/s9_pkg_map.dat file for the below lines. If they are not present, please add to the file.

# Cluster 2.2 Pkgs
- SUNWccd
- SUNWcmm
- SUNWff
- SUNWmond
- SUNWpnm
- SUNWsc
- SUNWsccf
- SUNWscds
- SUNWscins
- SUNWsclb
- SUNWscman
- SUNWscmgr
- SUNWscor
- SUNWscpro
- SUNWsma

- Create 100mb filesystem on slice 7 of S9 disk. Also, update S9 vfstab file
  /dev/dsk/c1t14d0s7 /dev/rdsk/c1t14d0s7 /globaldevices ufs 2 yes

Disable certain rc scripts temporarily:

- mv /.alt.S9BE/etc/rc2.d/S47asppp /.alt.S9BE/etc/rc2.d/s47asppp
- mv /.alt.S9BE/etc/rc3.d/S17pnm /.alt.S9BE/etc/rc3.d/s17pnm
- mv /.alt.S9BE/etc/rc3.d/S11sshfsd /.alt.S9BE/etc/rc3.d/s11sshfsd
- mv /.alt.S9BE/etc/rc3.d/S23initpmf /.alt.S9BE/etc/rc3.d/s23initpmf

 

## 15.2 Downtime Tasks

- Activate S9 as the boot environment
  #luactivate S9

- Stop the Cluster on both nodes
  #scadmin stopnode ( inactive node )
  #scadmin stopnode ( active node )

- Reboot the servers
  #init 6 ( both nodes )
  This should boot the server in solaris 9.

- Install SC3.0 on node A and do NOT select reboot now option. Install the Cluster patch on node A and reboot Node A . Install patch 112563-07

- Install SC3.0 on node B and do NOT select reboot now option Install the cluster patch on node B and reboot Node B. Install patch 112563-07

- Register the Quorum device using scsetup command

- Register NAFO group using pnmset command

- Import and Register all VXVM disk groups using scsetup

- Add the entries of all application filesystems in /etc/vfstab on all nodes. Change the mount at boot flag from yes to no
  Note: You can use sccheck to verify the entries
- The filesystems should NOT be mounted!

- Install all required data services on all nodes and patches.
  1. nfs 2. oracle or sybase

**Configure HAStoragePlus:**

Naming conventions:
  Resource group name - <logicalhost>-rg
  Hastorageplus resource name - <logicalhost>-hasp
  NFS resource name - <logicalhost>-nfs

Example:

 

Node A - sptoolssca.east
Node B - sptoolsscb.east
Logicalhost - sptools

The following commands will configure the cluster

- scrgadm -a -t SUNW.HAStoragePlus
- scrgadm -a -g sptools-rg -h sptoolssca,sptoolsscb
- scrgadm -a -j -g sptools-rg -t SUNW.HAStoragePlus -x Filesystem MountPoints=/data1,/home/tools,/home/app,/home/app/oracle/product,/home/app/oracle/admin -x GlobalDevicePaths=ufsdg35 -x AffinityOn=TRUE

The above command requires filesystem names to be specified in the order defined in /etc/vfstab on both nodes.

- scrgadm -a -g sptools-rg -L -l sptools
- scswitch -Z -g sptools-rg

**Configure HA-NFS**

# create /global/sptools/SUNW.nfs/dfstab.sptools-nfs file and put all shared files ystems.

- scrgadm -a -t SUNW.nfs
- scrgadm -c -g sptoolst-rg -y PathPrefix=/global/sptools
- scrgadm -a -j sptools-nfs -g sptools-rg -t SUNW.nfs -y Resource_dependencies=sptools-hasp
- scswitch -e -j sparc3-nfs

**Test the failover:**

On A node:

- scswitch -z -g sptools-rg -h sptoolsscb
- verify the failover.

 

- Do the failback from B node to A node
- scswitch -z -g sptools-rg -h sptoolssca

 

# 16. S9 Migration Support

For support contact information, bug-report updates, software versions, and complete documentation, reference the IT S9 Migration project website:

**http://S9MigrationWebURL**

To report S9 Migration Process and/or Tool problems, issues or bugs, fill out the support form template below. E-mail completed support form to the IT S9 Migration Support alias : it-s9-support@EMAIL_EDIT_THIS

```
------------------------------------------------------------------------
********************      S9 MIGRATION SUPPORT      ********************
------------------------------------------------------------------------

TODAY'S DATE              :

INSTALLER NAME            :
GROUP/TEAM/APPLICATION    :
MANAGER NAME              :

PKG SOURCE LOCATION       :
PROCESS VERSION           :

SERVER NAME               :
DOMAIN NAME               :

MIGRATION DATE/TIME       : DD-MON-YYYY HH:MM AM/PM PST (if applicable)


Report Type (mark X in one box):

          [ ] Report a Problem/Bug
          [ ] Request an Enhancement (RFE)


Area of problem or enhancement (mark X in one box):

          [ ] s9_premigration
          [ ] s9_migration
          [ ] s9_postmigration
          [ ] Documentation  If checked, document title:


Please include error messages from the screen below :



For request for enhancement (RFE), describe the enhancement you want :
```

 

# 17. S9 Migration Glossary

**Alternate Boot Environment (ABE)**
Name given to the new boot environment used to install Solaris 9 Operating Environment.

**clone system:**
A system installed using a Flash archive (target system being migrated). The master system and the clone system have identical OS configurations.

**flash archive:**
A file containing all files copied from a master system and archive identification information (such as name and creation date). When installing an archive on a system, the system  contains the exact master system configuration used to create the archive.

**master system:**
A system used to create Flash Archives. The system configuration is saved in the archive. The master system configuration is identical to the system configuration that you want to upgrade .

 

# 18. Appendices

## 18.1 Appendix A: Known Issues and Limitations

1. `/usr/ucblib` in LD_LIBRARY_PATH

   Application software (or your commands) may experience issues on Solaris 9 if effective shell environment has **/usr/ucblib** before **/usr/lib** in the LD_LIBRARY_PATH environment variable.

   This problem first appeared in Solaris 8. Therefore, if the server is being migrated from Solaris 8 to Solaris 9, you may not encounter this problem as all LD_LIBRARY_PATH occurrences may already been fixed.

   For example: vi editor command will fail with following error .

   ```
   ld.so.1: vi: fatal: relocation error: file vi: symbol _first_term: referenced symbol not found
   Killed
   ```

   **Workaround**: Set the LD_LIBRARY_PATH variable such that **/usr/lib** comes before**/usr/ucblib**. Or do not include **/usr/ucblib** in LD_LIBRARY_PATH variable. You may want to make similar change, if necessary, in all application environment files and scripts.

2. Serengeti Platform Issue

   If your hardware platform is Serengeti, you will need to install SUNWessda in order to make SunMC to work properly. Please reference the ***SunMC Installation Guide*** for further details.

3. Console Unusable Issue (stty sane)

   Issuing the command 'stty sane' on a serial device causes character I/O to behave strangely. This is true in the case of /dev/console hooked up to the NTS terminal servers. Issuing this command will render the console unusable.

   This problem has mainly been seen with the latest flash image, version 1.3.2. This is a documented solaris issue and is not a S9 Migration Process Issue. See BugID 4811613.

   The entry "stty sane" is in many of the /.login files thus affecting the console during root login. To assist with this issue the S9 Automated Post Migration Process will comment out this entry, if present , in the /.login file on the Solaris 9 environment

 

only. However, this fix will ONLY WORK for root using the ***C Shell environment*** . Read below for alternate workaround solutions.

**Workaround**: As an alternate workaround to this issue you can try the following: (as root rlogin'ed) run "*stty cs8 -parenb -ignpar -istrip tab3 < /dev/console*"

## 18.2 Appendix B: Sample Format output, 9Gb disks

Following transcript shows a sample of the manual format commands required for 9GB disks.

```
foo# format  c1t13d0
selecting c1t13d0
[disk formatted]
Warning: Current Disk has mounted partitions.


FORMAT MENU:
        disk       - select a disk
        type       - select (define) a disk type
        partition  - select (define) a partition table
        current    - describe the current disk
        format     - format and analyze the disk
        repair     - repair a defective sector
        label      - write label to the disk
        analyze    - surface analysis
        defect     - defect list management
        backup     - search for backup labels
        verify     - read and display labels
        save       - save new disk/partition definitions
        inquiry    - show vendor, product and revision
        volname    - set 8-character volume name
        !<cmd>     - execute <cmd>, then return
        quit
format> partition


PARTITION MENU:
        0      - change `0' partition
        1      - change `1' partition
        2      - change `2' partition
        3      - change `3' partition
        4      - change `4' partition
        5      - change `5' partition
        6      - change `6' partition
        7      - change `7' partition
        select - select a predefined table
        modify - modify a predefined partition table
        name   - name the current table
        print  - display the current table
        label  - write partition map and label to the disk
        !<cmd> - execute <cmd>, then return
        quit
partition> print
Current partition table (original):
```

 

```
Total disk cylinders available: 4924 + 2 (reserved cylinders)

Part       Tag    Flag     Cylinders      Size            Blocks
  0       root    wm       0 - 1140      1.95GB  (1141/0/0)  4097331
  1       swap    wu    1141 - 2281      1.95GB  (1141/0/0)  4097331
  2     backup    wu       0 - 4923      8.43GB  (4924/0/0) 17682084
  3 unassigned    wu    2282 - 2290     15.78MB  (9/0/0)       32319
  4 unassigned    wu       0             0       (0/0/0)           0
  5        var    wm    2291 - 2861   1001.20MB  (571/0/0)   2050461
  6       home    wm    2862 - 3318    801.31MB  (457/0/0)   1641087
  7 unassigned    wu       0             0       (0/0/0)           0

partition> 0
Part      Tag    Flag     Cylinders        Size           Blocks
  0       root    wm       0 - 1140        1.95GB  (1141/0/0)  4097331

Enter partition id tag[root]:
Enter partition permission flags[wm]:
Enter new starting cyl[0]:
Enter partition size[4097331b, 1141c, 2000.65mb, 1.95gb]: 1.95gb
partition> 1
Part      Tag    Flag     Cylinders        Size           Blocks
  1       swap    wu    1141 - 2281        1.95GB  (1141/0/0)  4097331

Enter partition id tag[swap]:
Enter partition permission flags[wu]:
Enter new starting cyl[1141]:
Enter partition size[4097331b, 1141c, 2000.65mb, 1.95gb]: 1.95gb
partition> 3
Part      Tag    Flag     Cylinders        Size           Blocks
  3 unassigned    wu    2282 - 2290       15.78MB  (9/0/0)       32319

Enter partition id tag[unassigned]:
Enter partition permission flags[wu]:
Enter new starting cyl[2282]:
Enter partition size[32319b, 9c, 15.78mb, 0.02gb]: 15.78mb
partition> 5
Part      Tag    Flag     Cylinders        Size           Blocks
  5        var    wm    2291 - 2861     1001.20MB  (571/0/0)   2050461

Enter partition id tag[var]:
Enter partition permission flags[wm]:
Enter new starting cyl[2291]:
Enter partition size[2050461b, 571c, 1001.20mb, 0.98gb]: 0.98gb
partition> 6
Part      Tag    Flag     Cylinders        Size           Blocks
  6       home    wm    2862 - 3318      801.31MB  (457/0/0)   1641087

Enter partition id tag[home]:
Enter partition permission flags[wm]:
Enter new starting cyl[2862]:
Enter partition size[1641087b, 457c, 801.31mb, 0.78gb]: 801.31mb
partition> print
Current partition table (unnamed):
Total disk cylinders available: 4924 + 2 (reserved cylinders)

Part       Tag    Flag     Cylinders      Size            Blocks
  0       root    wm       0 - 1138      1.95GB   (1141/0/0)  4097331
  1       swap    wu    1141 - 2279      1.95GB   (1141/0/0)  4097331
  2     backup    wu       0 - 4923      8.43GB   (4924/0/0) 17682084
```

```
  3 unassigned     wu    2282 - 2290   15.78MB   (9/0/0)       32319
  4 unassigned     wu       0            0        (0/0/0)           0
  5        var     wm    2291 - 2863  1004.71MB  (573/0/0)   2057643
  6       home     wm    2862 - 3318   801.31MB  (457/0/0)   1641087
  7 unassigned     wu       0            0        (0/0/0)           0


partition> label
Ready to label disk, continue? y
partition> print
Current partition table (unnamed):
Total disk cylinders available: 4924+ 2 (reserved cylinders)

Part       Tag    Flag     Cylinders       Size            Blocks
  0       root     wm       0 - 1138    1.95GB   (1141/0/0)  4097331
  1       swap     wu    1141 - 2279    1.95GB   (1141/0/0)  4097331
  2     backup     wu       0 - 4923    8.43GB   (4924/0/0) 17682084
  3 unassigned     wu    2282 - 2290   15.78MB   (9/0/0)       32319
  4 unassigned     wu       0            0        (0/0/0)           0
  5        var     wm    2291 - 2863  1004.71MB  (573/0/0)   2057643
  6       home     wm    2862 - 3318   801.31MB  (457/0/0)   1641087
  7 unassigned     wu       0            0        (0/0/0)           0


partition> quit
format> quit
foo#
```

# 18.3 **Appendix C**: Sample **s9_os_validation_fil**e Report

```
################################################################################
##
# REPORT DATE:       Wed Feb 19 04:33:12 MST 2003
# HOSTNAME:          foo
# THIS REPORT HAS THE FOLLOWING FORMAT:
# <reason><type>     <file_name>
# MISSING FILE       /etc/x
# DIFF               *DIR*     /var/y
# ...
#
# where <reason> could be MISSING or DIFF
#                    MISSING             the file_name does not exist in S9BE
#                    DIFF                the file_name has checksum or size
difference
#                                        between S6BE and S9BE
```

 

```
#         <type> is one of the following types similar to the type in
lucompare
#                   SYMLINK             symbolic link
#                   FIFO                FIFO file
#                   CHRSPC              character special
#                   BLKSPC              block special
#                   *DIR*               directory
#                   FILE                regular file
#                   UNKNOW              unknown file type
#
#
################################################################################
##
#
# This section is for MISSING files/directories:
#=========================================================
MISSING    *DIR*     /app/acevaih
MISSING    *DIR*     /app/applmgr
MISSING    *DIR*     /app/appworx
MISSING    *DIR*     /app/arch
MISSING    *DIR*     /app/autohome
MISSING    *DIR*     /app/cst
MISSING    SYMLINK   /app/dr_report
MISSING    SYMLINK   /app/foglight
MISSING    *DIR*     /app/highway
MISSING    *DIR*     /app/ihebd
MISSING    *DIR*     /app/jdbc
MISSING    *DIR*     /app/sfrontih
MISSING    FILE      /app/smcadm/.sh_history
MISSING    FILE      /etc/system.sav
MISSING    SYMLINK   /etc/utmp
MISSING    FILE      /etc/vfstab.ORIG
MISSING    FILE      /etc/vfstab.btspotist
MISSING    FILE      /etc/vfstab.prevm

#
# This section is for DIFF files/directories listing:
#=========================================================
```

 

```
DIFF      FILE      /etc/.login
DIFF      FILE      /etc/.obp_devices
DIFF      FILE      /etc/acct/holidays
DIFF      FILE      /etc/cron.d/.proto
DIFF      FILE      /etc/datemsk
DIFF      FILE      /etc/default/inetinit
DIFF      FILE      /etc/default/kbd
DIFF      FILE      /etc/default/login
DIFF      FILE      /etc/default/nss
DIFF      FILE      /etc/default/rpc.nisd
DIFF      FILE      /etc/dfs/fstypes
DIFF      FILE      /etc/driver_aliases
DIFF      FILE      /etc/inet/services
DIFF      FILE      /etc/inet/sock2path
DIFF      FILE      /etc/init.d/ANNOUNCE
DIFF      FILE      /etc/init.d/MOUNTFSYS
DIFF      FILE      /etc/init.d/PRESERVE
DIFF      FILE      /etc/init.d/README
```

## 18.4 **Appendix D:** Sample **s9_os_validation_pkg** Report

```
[20030219_04:30:44] INFO: Diffing the packages between current BE and S9BE...

Current booting environment package count: 221
Alternate booting environment package count: 576

THE FOLLOWING PACKAGES ARE NOT IN NEW BOOT ENVIRONMENT [S9BE]:

Please note that the package may change name in between OS
versions. The list is only showing the packages that exist in the
current booting environment which do not exist in the
new booting environment (BE).


*** PACKAGES WITH IDENTIFIED MAP TO NEW PKG ***
```

 

```
These packages are known to have corresponding mapping with
different package name in new OS release.
 [Mapped_Installed] Mapped pkg already exist in new BE.
 [Mapped_Not_Installed] Mapped pkg not installed in new BE, install may
later.

=================================================================
[Mapped_Installed] [S9 = SUNWider  ] system      SUNWide        IDE device
drivers
[Mapped_Installed] [S9 = SUNWpd    ] system      SUNWpci        PCI Simba
device drivers
[Mapped_Installed] [S9 = SUNWssad  ] system      SUNWssadv      SPARCstorage
Array Drivers
[Mapped_Installed] [S9 = SUNWstade ] Diagnostics STORtools      A5000
Diagnostic Package
[Mapped_Installed] [S9 = VRTSob    ] system      SUNWvxva       Sun StorEdge
Volume Manager, Visual Administrator
[Mapped_Installed] [S9 = VRTSvmman ] system      SUNWvmman      Sun StorEdge
Volume Manager, Manual Pages
[Mapped_Installed] [S9 = VRTSvxvm  ] system      SUNWvxvm       Sun StorEdge
Volume Manager
=================================================================
*** PACKAGES NOT IN NEW OS RELEASE or IDENTIFIED AS OBSOLETE ***

Best effort analysis done to identify obsolete or discontinued pkgs.
These packages may not be available in Solaris 9 release or replaced
with a different package name (mapping unknown).
 [Obsolete] Pkg known as obsolete in new OS.
 [Discontinued] Pkg that do not exist in Solaris 9 standard OS media.
 [Not_Installed] Pkg purposefully not installed in new OS image.

=================================================================
[Not_Installed] system      SUNWcscb1      Cache Scrubber, Beta Test Version
(Usr)
[Not_Installed] system      SUNWcscb2      Cache Scrubber, Beta Test Version
(Root)
[Not_Installed] system      SUNWcsst1      Cache Scrubber Statistics
Collection
[Not_Installed] system      SUNWcsst2      Cache Scrubber Statistics
Collection
[Obsolete] application SUNWpexh       PEX Client Developer Files
[Obsolete] application SUNWsbuc       Solstice Backup (Backup/Recover) Client
```

 

```
[Obsolete] application SUNWxgldg      XGL Generic Loadable Libraries
[Obsolete] application SUNWxgler      XGL English Localization
[Obsolete] application SUNWxglft      XGL Stroke Fonts
[Obsolete] application SUNWxglh       XGL Include Files
[Obsolete] application SUNWxglrt      XGL Runtime Environment
[You_May_Install] system      SUNWcg6h       GX (cg6) Header Files
[You_May_Install] system      SUNWeudba      UTF-8 L10N for CDE Base
[You_May_Install] system      SUNWeudbd      UTF-8 L10N for CDE Dtbuilder
[You_May_Install] system      SUNWeudda      UTF-8 L10N For CDE Desktop
Applications
[You_May_Install] system      SUNWeudhr      UTF-8 L10N For CDE Help Runtime
[You_May_Install] system      SUNWeudhs      UTF-8 L10N For CDE Help Runtime
[You_May_Install] system      SUNWeudis      UTF-8 L10N For CDE Icons
[You_May_Install] system      SUNWeudiv      UTF-8 L10N For Desktop Imagetool
[You_May_Install] system      SUNWeudlg      UTF-8 L10N For CDE Desktop Login
[You_May_Install] system      SUNWeudmg      UTF-8 L10N For Desktop Window
Manager
================================================================


*** PACKAGES IDENTIFIED AS VALID FOR AUTO MOVE FROM CURRENT TO NEW BE ***

Best effort attempted to transfer identified packages (if any)
from Current to New boot environment. See below progress.
 [Auto_Move] Marked for attempting package transfer from old to new BE.

================================================================
[Auto_Move] GTOtools    GTOTascng      Autosys 3.4.2 Client - Non GUI
[Auto_Move] TOOLS       TLSlhalrm      Lighthouse Alarm Client Package
Version 1.1 - ( Build - 10 )
[Auto_Move] TOOLS       TLSsmcf        Tools SunMC Components
[Auto_Move] application COSDTool       Customer Original Schedule Date Tool
[Auto_Move] application DRREPORTS      DR Reports
[Auto_Move] application LPMLIMS        Leadtime Performance Metric - Core
LIMS Package
[Auto_Move] application LPTTool        Leadtime Predictive Tool
[Auto_Move] application SIGMGR         Signal Manager MIT
[Auto_Move] application SIGMGR-DR      Signal Manager - Demand Replenishment
[Auto_Move] application WWOPSwcl       Web Contents List
```

 

```
[Auto_Move] system      SENSpriv       ENS priv
[Auto_Move] system      SUNWj2dem      JDK 1.2 demo programs
================================================================


[20030219_04:30:54] INFO: Attempting to transfer identified packages from
current to new BE ...


INFO: Working on Package: COSDTool ...
          Transferring pkg files for COSDTool ...
0 blocks
          Transferring pkg definition for COSDTool ...
17 blocks
          Transferring contents data for COSDTool ...
          Package transfer completed for COSDTool. Review any ERRORs above.


INFO: Working on Package: DRREPORTS ...
          Transferring pkg files for DRREPORTS ...
0 blocks
```

## 18.5 Appendix E: Release Change History

### Version 1.3.4, released July 29, 2003

- ***BUGS FIXED*:**
  - Fixed issue when no separate /var mount on old boot environment
  - Fixed issue with raw device(/dev/rdsk) ownership not updated.
  - Fixed issue with raw meta-device(/dev/md/rdsk) ownership not updated.
- ***RFE's* :**
  - Create new flash with latest patches as of 17-JUL-2003.
  - Validate correct O/S disk entered when breaking Veritas mirror

### Version 1.3.3, released May 14, 2003

- ***BUGS FIXED*:**
  - Fixed default shell for smmsp.

 

- Fixed issue concerning "Already running message".

- ***RFE's*** **:**
  - Create new flash with latest patches as of 12-MAY-2003 and new version of SunSWAT 5.0.0 which also required SUNWjass packag to be included
  - Added check in s9_migration.sh for dump device.
  - Capture volume manager info based on root partition.

**Version 1.3.2, released April 7, 2003**

- ***BUGS FIXED*****:**
  - Fixed issue with version release being displayed by premigration.
  - Fixed nawk issue in post_migration.sh
- ***RFE's*** **:**
  - Added notes to run Explorer after one to two hours of reboot .
  - Added additional language packages to all package map files.
  - Added E10K Solaris pacages to the solaris map files so the are not copied.
  - Addressed stty sane issue by commenting it out in /.login and documenting.
  - Added latest patches (as of 27-MAR-2003) & created new ITSM Flash Archive.
  - Added shelltool, cmdtool from S8 to new flash.
  - Created FAQ, posted to website.

**Version 1.3.1, released Feburary 19, 2003**

- ***BUGS FIXED*****:**
  - Fixed issue with detecting Live-Upgrade patch revisions.
  - Fixed issue with detecting whether a patch has already been installed.
  - Fixed issue with detecting whether a patch has already been installed.
  - Fixed issue with printing table of O/S disk states.
  - Fixed issue with Verify_slice fails to pass minimum partition size
  - Modified df commands to avoid hanging on stale NFS mounts.
- ***RFE's*** **:**

 

- Added functionality to copy patches from local AI3 server
- Ability to call custom post processing script Modified Functions
- Postmigration report now shows rc files are now synced between boot environments

**Version 1.3, released January 29, 2003**

- ***BUGS FIXED*:**
  - Create missing mount points from auto_direct
  - Remove 32bit mode notes from document
- ***RFE's* :**
  - Ability to input software server and paths
  - Add eeprom validation for boot-disk
  - Add the module to decide the bit mode on ABE
  - Automate Package Synchronizing
  - Document steps to finalize version of OS
  - Show additional WARNING messages before continuing for Auto Format
  - Process /etc/alias in ABE
  - Process /etc/services in ABE
  - Process /etc/inetd.comf in ABE
  - Provide New Flash Archive release.

**Version 1.2, released January 13, 2003**

- ***BUGS FIXED*:**
  - Fixed "Available Mem" statement.
  - Modify s9_migration script to use luumount with -m option.
  - Check on SUNWlur/SUNWluu package version, and upgrade if necessary.
  - Fixed calls to subroutnines in premigration.
  - New BE sizes to verify current sizes.
- ***RFE's* :**
  - Automate creation of sysidcfg.
  - SVM/SDS support capability.

 

- Automate disk partitioning.
- Comment obsolete /etc/system parameters.
- Document the restart of process for each module.
- Add new Solaris 9 smmsp user.
- Process /etc/printers.conf
- Process /var/opt
- Process crontabs into new boot environment.
- Enhance Post Processing.
- Standard S9 Flash Archive - Include SunMC module.
- Provide listing of current available flash images.
- Enhance the s9_postmigration reports.
- Automate SunMC configuration.
- Send email of run times to presidents for logging.
- Swap Size Recommendation.

- **Version 1.1, released December 9, 2002**
  - Consolidate and reformat the post migration content report for ease of use.
  - After the end of post migration process, copy all the log/out files to new BE.
  - Actual disk sizes from partition table, is populated in dynamic environment file.
  - Display progress message about step currently running in the migration process.
  - Document "DONT-DOs" list for S9BE where dual boot is needed, to retain application functionality in old Solaris OS
  - Enhanced documentation for Version 1.1.
  - Flash image naming standards and location is defined (Major_Minor_platform_arch_date.flar) . For example s9_0902_sparc_sun4u_20021122.flar
  - Improved performance for s9_postmigration step.
  - Remove new BE activation from s9_migration.sh
  - Remove unused variables from dynamic environment file.
  - Show qualified disk list to user before prompting user to select the disk.
  - Standardize log/out file naming.

 

- **Version 1.0, released November 25, 2002**
  - FCS Release.

 